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ABSTRACT OF THE INVENTION

A method, apparatus and computer-readable storage medium for regulating packet flow through a device such as a router with a switch fabric. Congestion information, such as statistics on bandwidth utilization, is collected for each of a plurality of queues at an egress stage of the device. Based on the bandwidth utilization statistics, computations are performed to evaluate a "discard probability" for each queue. This information is transmitted to the ingress stage, either periodically or at other controlled time periods, such as when the discard probability changes significantly. The ingress stage can then proceed with controllable transmission or non-transmission of packets to the switch fabric, depending on the queue for which the packet is destined and also depending on the discard probability for that queue. In this way, congestion can be avoided even before it even has a chance to occur. This leads to improved bandwidth utilization, since packets which are discarded at the ingress stage will not unnecessarily take up other resources in the device.

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